1647

PATENT/Docket No. 6142.N2 CP #10 Jmsy 8/24/01

CERTIFICATE OF MAILING (37 CFR 1.8)

Date of Deposit with U.S. Postal Service: August 14, 2001

I hereby certify that this paper is being deposited with the United States Postal Service as first class mail under 37 CFR 1.8 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, DC 20231.

Debra J. Marquette — **Name of Person Mailing Paper**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Art Unit	:	1647
Examiner	:	Sharon L. Turner, Ph.D.
Applicant(s)	:	ME Gurney, AM Pauley, and J Li
Serial Number	:	09/328,877
Filed	:	9 June 1999
For	:	Human Sel-10 Polypeptides and Polynucleotides that Encode Them

Commissioner of Patents and Trademarks
Washington, DC 20231

TRANSMITTAL OF A RESPONSE TO A NON-FINAL ACTION (37 CFR 1.111)

Sir:

Transmitted herewith is a reply and/or amendment in the above-captioned application in response to the Examiner's action dated 14 June 2001.

[X] The reply and/or amendment is being filed under 37 CFR 1.8 and the required Certificate of Mailing appears above.

[] An additional fee in the amount of $ is required for the amended claims presented and has been calculated as shown in the attached sheet.

Please charge Deposit Account No. **21-0718** in the amount of the additional fee above, or such greater or lesser amount of excess fees for claims as the Commissioner determines is required by law. Triplicate copies of this sheet are enclosed.

EXTENSION OF TIME. In the event this paper is not filed prior to the time set for response, applicant(s) hereby petition for an extension of the period for filing the attached reply and/or amendment to the date of filing this paper, and hereby authorize the Commissioner to charge the extension fee as may be required by 37 CFR 1.17, to Deposit Account No. **21-0718**. If for any

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reason the extension requested above is insufficient to extend this period to the date of this paper, applicant(s) hereby petition for the revival of the above-captioned application as having been unintentionally abandoned and authorize the Commissioner to charge the required fees under 37 CFR 1.17 to Deposit Account No. **21-0718**.

Respectfully submitted,

Edward F. Rehberg

Date: 8-14-2001

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Registration No. 34,703

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Enclosures:

Reply/Amendment
[] Calculation of Additional Fees for Amended Claims

+11
8/24/01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Art Unit	:	1647
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Commissioner of Patents and Trademarks
Washington, DC 20231

Sir:

This is in response to the office action mailed 14 June 2001 in the above-identified application, the shortened statutory period for response being until 14 July 2001. A request for a one month extension of time for response is included herewith to extend the period for response to 14 August 2001.

Election

Group XIV is provisionally elected with traverse.

Background

The Examiner initially issued a four way restriction requirment asserting that claims directed to I. polynucleotides, II. polypeptides, III. antibodies and IV. methods of identifying agents were distinct. Applicant responded by electing group II with traverse. The Examiner responded by vacating the previously issued restriction requirement and imposed a 34 way restriction requirement.

Traversal of the Restriction Requirement

The Applicant would point the Examiner to MPEP 803.04 and 2434 which indicates that a reasonable number of nucleotide and amino acid sequences are permitted to be claimed in an application.

Applicant would submit that the most recently imposed restriction requirement is decidedly *un*reasonable. Applicant's submit that the sequences in the present application are so interrelated as to be easily searched together without undue burden on the Patent Office. Applicant's have aligned the nucleic acid sequences of the mammary and hippocampal forms of sel-10 so that the examiner may appreciate this fact. In addition the Applicants have aligned SEQ ID NOS:1-10 so that the Examiner may appreciate their considerable degree of identity.

Applicants would respectfully submit that at the very least the previous four way restriction requirement should be reinstated but would also respectfully request that the examiner address the traversal in the previously filed papers.

Respectfully submitted,

Edward F. Rehberg

Date: 8-14-2001

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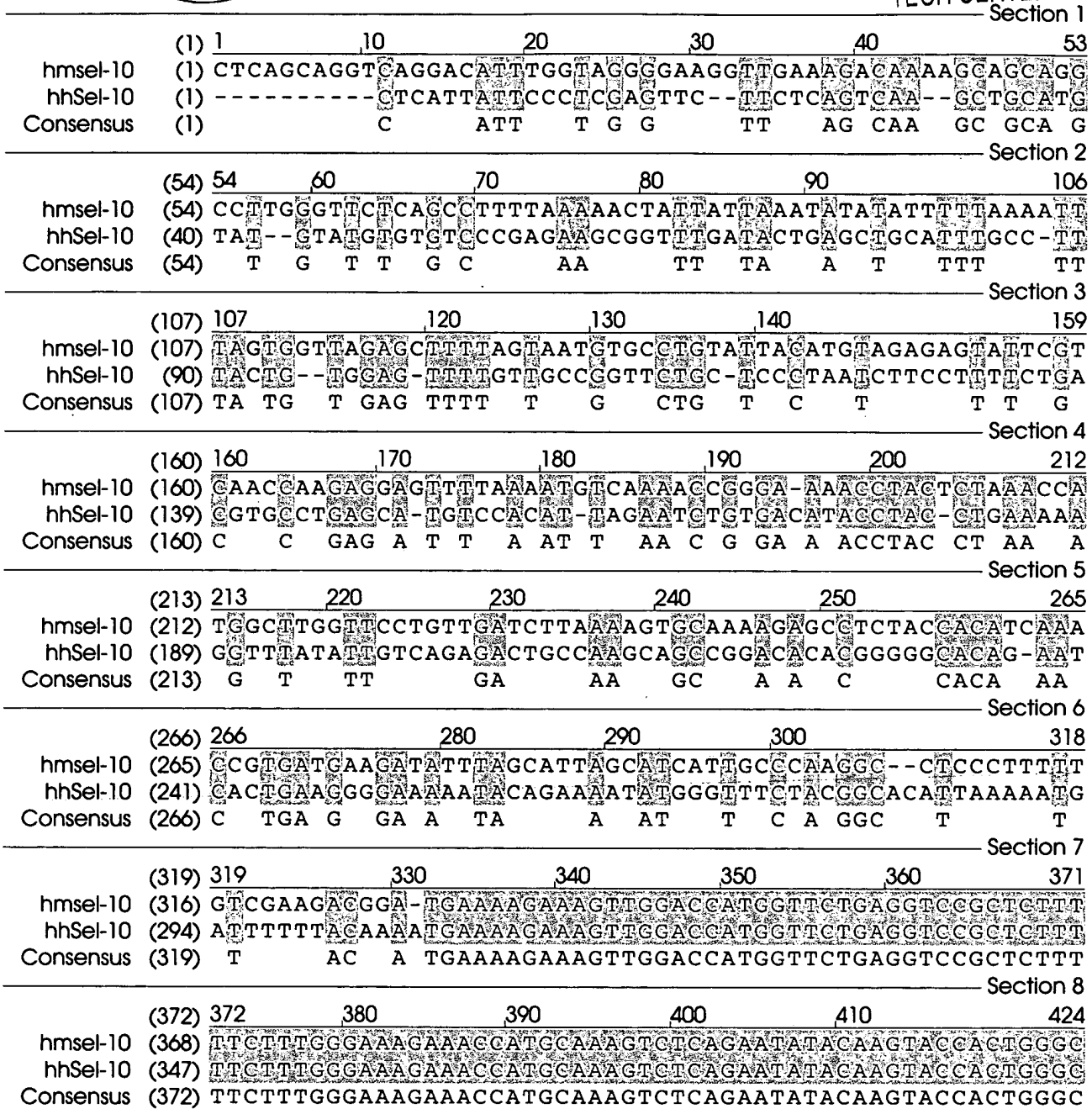
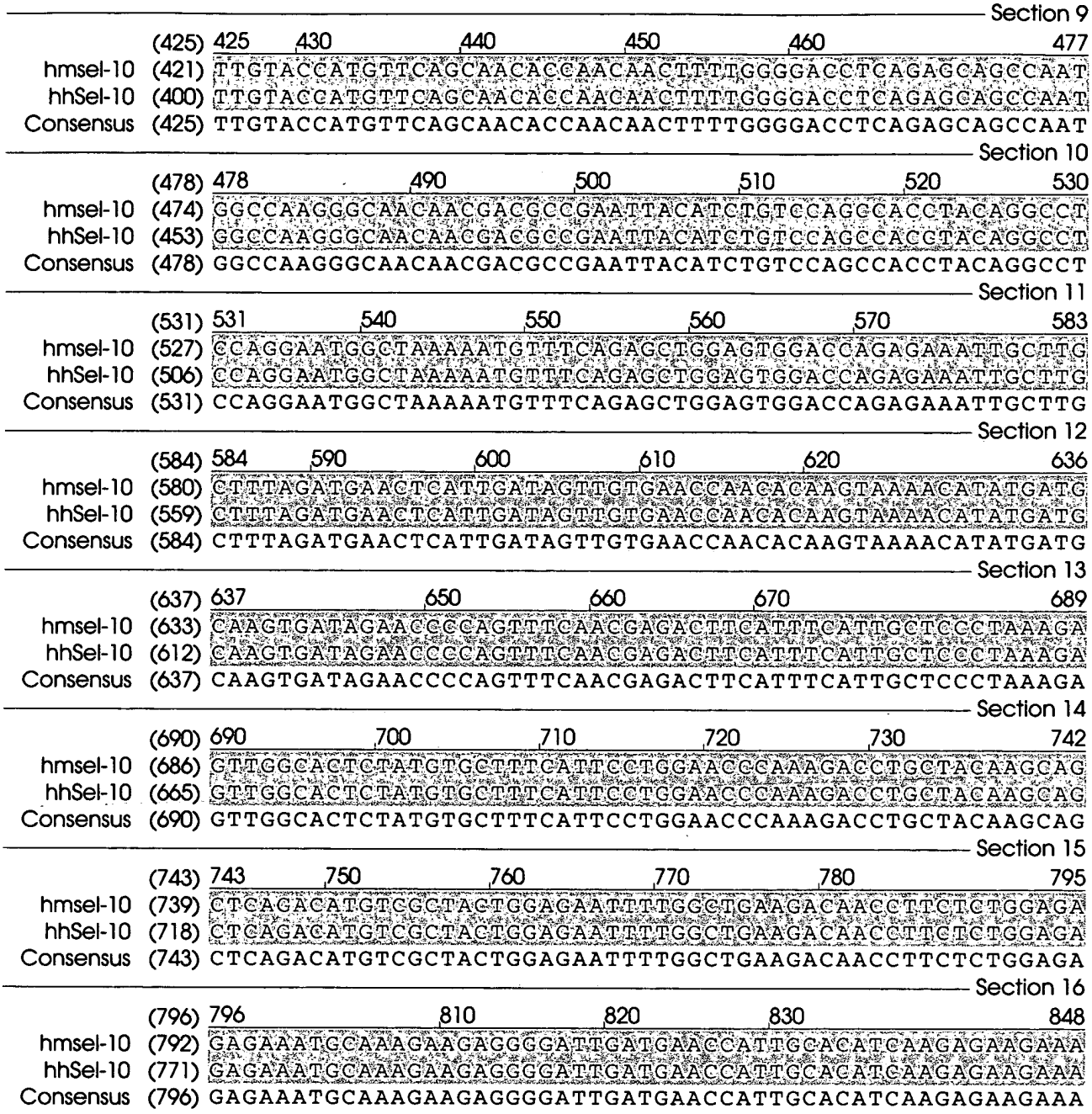
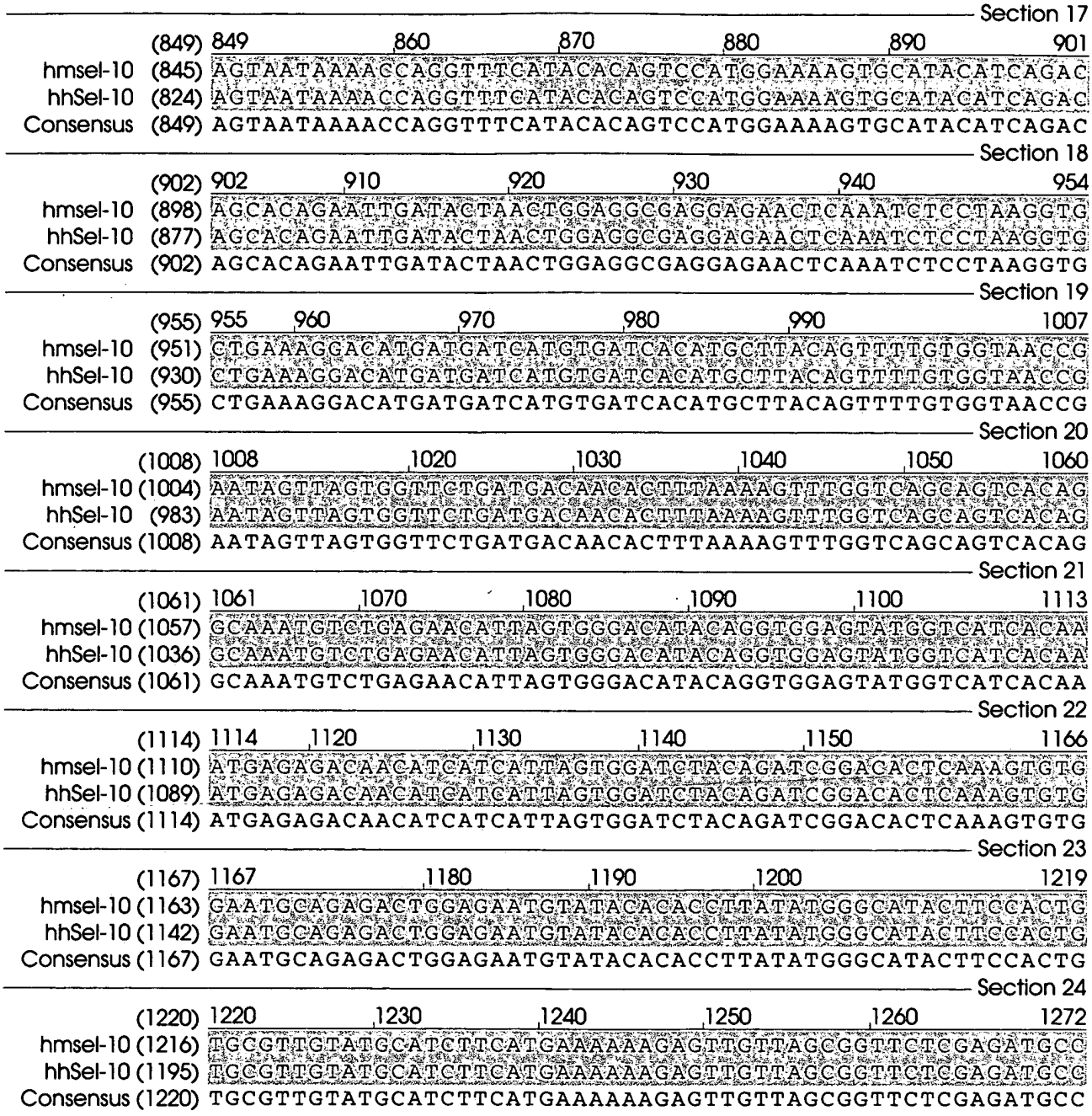
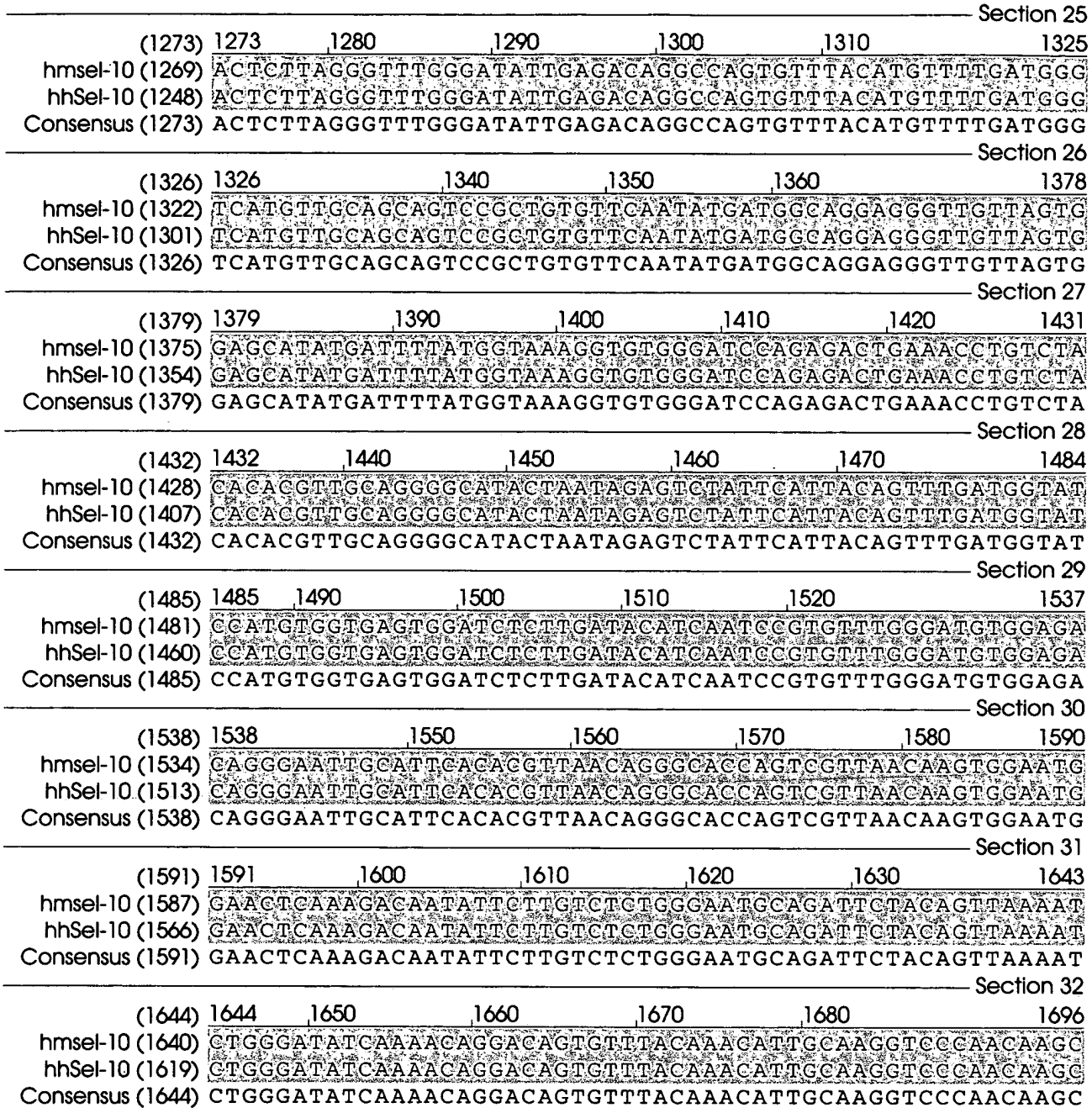
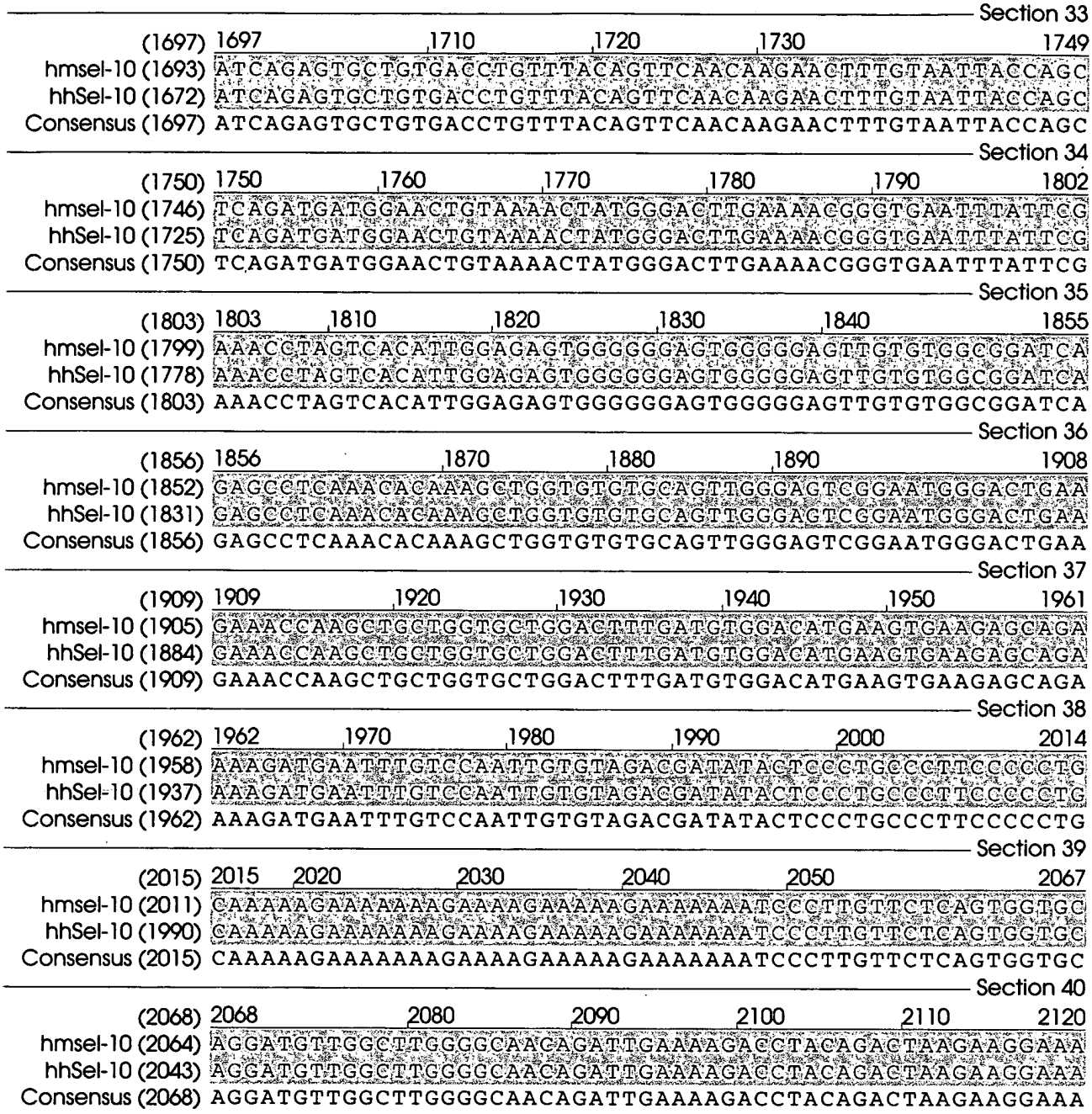
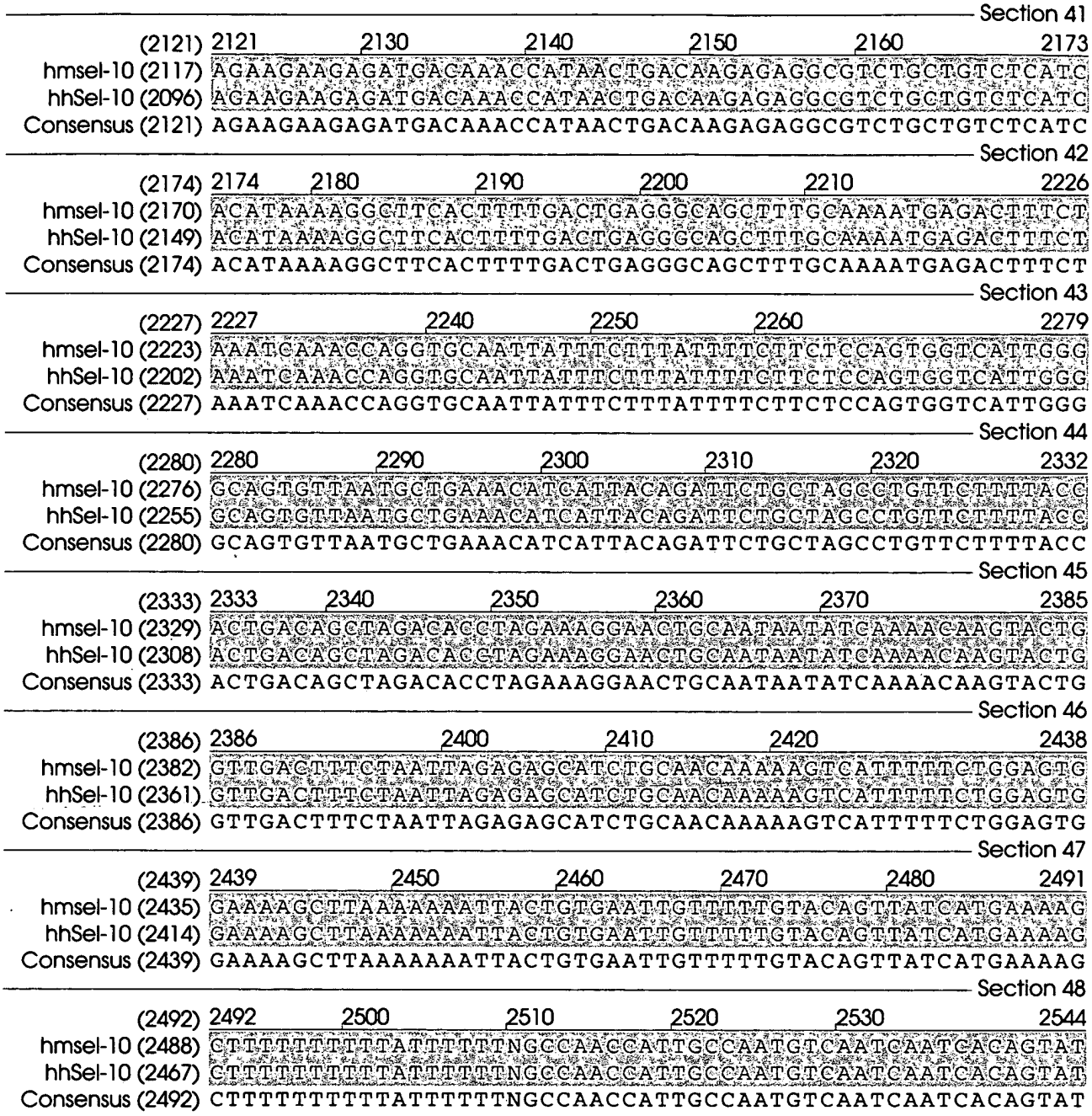


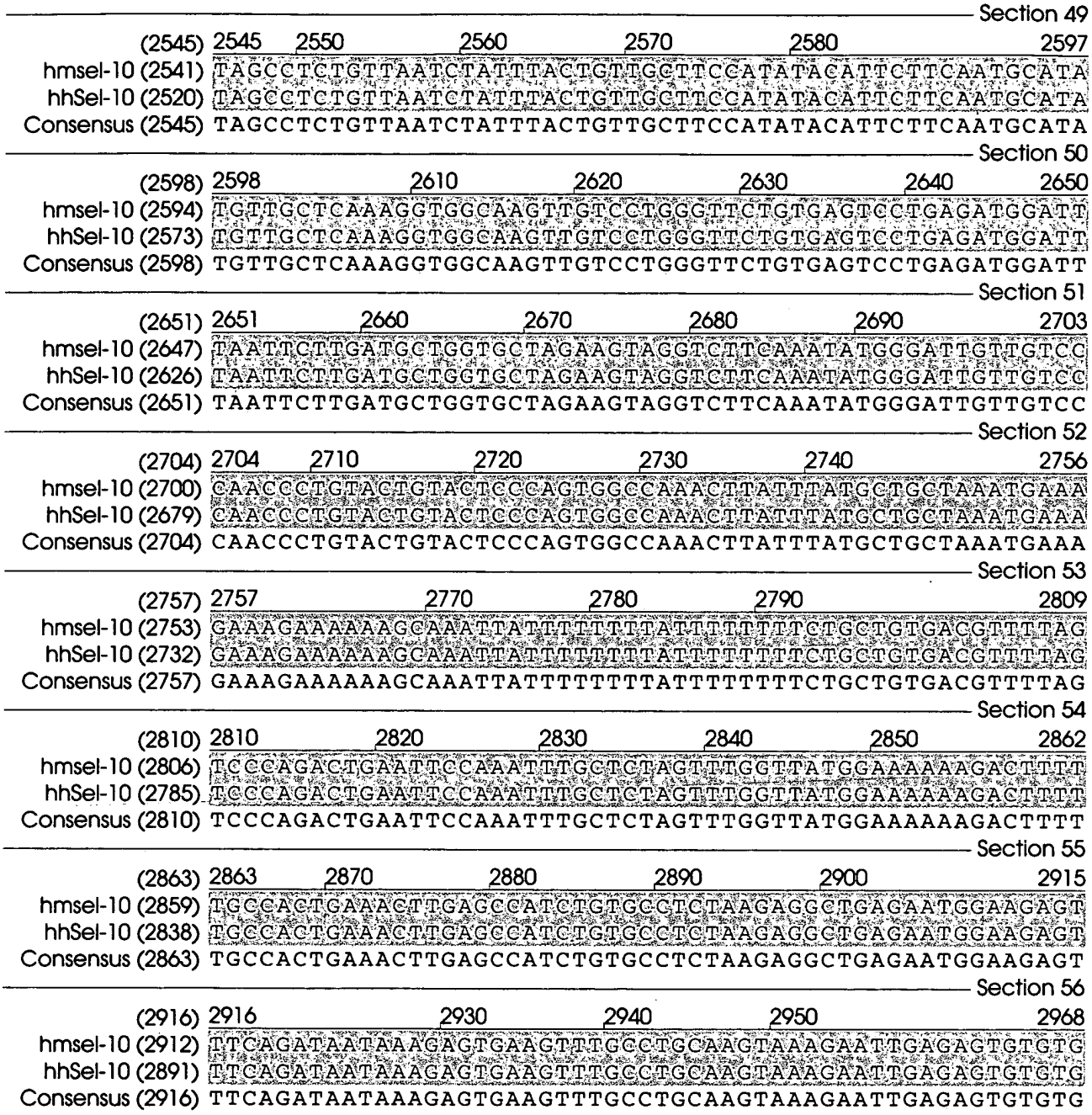

Section 9
(425) 425 430 440 450 460 477
hmsel-10 (421) TTGTACCATGTTCAGCAACACCAACAACTTTTGGGGACCTCAGAGCAGCCAAT
hhSel-10 (400) TTGTACCATGTTCAGCAACACCAACAACTTTTGGGGACCTCAGAGCAGCCAAT
Consensus (425) TTGTACCATGTTCAGCAACACCAACAACTTTTGGGGACCTCAGAGCAGCCAAT
Section 10
(478) 478 490 500 510 520 530
hmsel-10 (474) GGCCAAGGGCAACAACGACGCCGAATTACATCTGTCCAGGCACCTACAGGCCT
hhSel-10 (453) GGCCAAGGGCAACAACGACGCCGAATTACATCTGTCCAGCCACCTACAGGCCT
Consensus (478) GGCCAAGGGCAACAACGACGCCGAATTACATCTGTCCAGCCACCTACAGGCCT
Section 11
(531) 531 540 550 560 570 583
hmsel-10 (527) CCAGGAATGGCTAAAAATGTTTCAGAGCTGGAGTGGACCAGAGAAATTGCTTG
hhSel-10 (506) CCAGGAATGGCTAAAAATGTTTCAGAGCTGGAGTGGACCAGAGAAATTGCTTG
Consensus (531) CCAGGAATGGCTAAAAATGTTTCAGAGCTGGAGTGGACCAGAGAAATTGCTTG
Section 12
(584) 584 590 600 610 620 636
hmsel-10 (580) CTTTAGATGAACTCATTGATAGTTGTGAACCAACACAAGTAAAACATATGATG
hhSel-10 (559) CTTTAGATGAACTCATTGATAGTTGTGAACCAACACAAGTAAAACATATGATG
Consensus (584) CTTTAGATGAACTCATTGATAGTTGTGAACCAACACAAGTAAAACATATGATG
Section 13
(637) 637 650 660 670 689
hmsel-10 (633) CAAGTGATAGAACCCCAGTTTCAACGAGACTTCATTTCATTGCTCCCTAAAGA
hhSel-10 (612) CAAGTGATAGAACCCCAGTTTCAACGAGACTTCATTTCATTGCTCCCTAAAGA
Consensus (637) CAAGTGATAGAACCCCAGTTTCAACGAGACTTCATTTCATTGCTCCCTAAAGA
Section 14
(690) 690 700 710 720 730 742
hmsel-10 (686) GTTGGCACTCTATGTGCTTTCATTCCTGGAACCCAAAGACCTGCTACAAGCAG
hhSel-10 (665) GTTGGCACTCTATGTGCTTTCATTCCTGGAACCCAAAGACCTGCTACAAGCAG
Consensus (690) GTTGGCACTCTATGTGCTTTCATTCCTGGAACCCAAAGACCTGCTACAAGCAG
Section 15
(743) 743 750 760 770 780 795
hmsel-10 (739) CTCAGACATGTCGCTACTGGAGAATTTTGGCTGAAGACAACCTTCTCTGGAGA
hhSel-10 (718) CTCAGACATGTCGCTACTGGAGAATTTTGGCTGAAGACAACCTTCTCTGGAGA
Consensus (743) CTCAGACATGTCGCTACTGGAGAATTTTGGCTGAAGACAACCTTCTCTGGAGA
Section 16
(796) 796 810 820 830 848
hmsel-10 (792) GAGAAATGCAAAGAAGAGGGGATTGATGAACCATTGCACATCAAGAGAAGAAA
hhSel-10 (771) GAGAAATGCAAAGAAGAGGGGATTGATGAACCATTGCACATCAAGAGAAGAAA
Consensus (796) GAGAAATGCAAAGAAGAGGGGATTGATGAACCATTGCACATCAAGAGAAGAAA

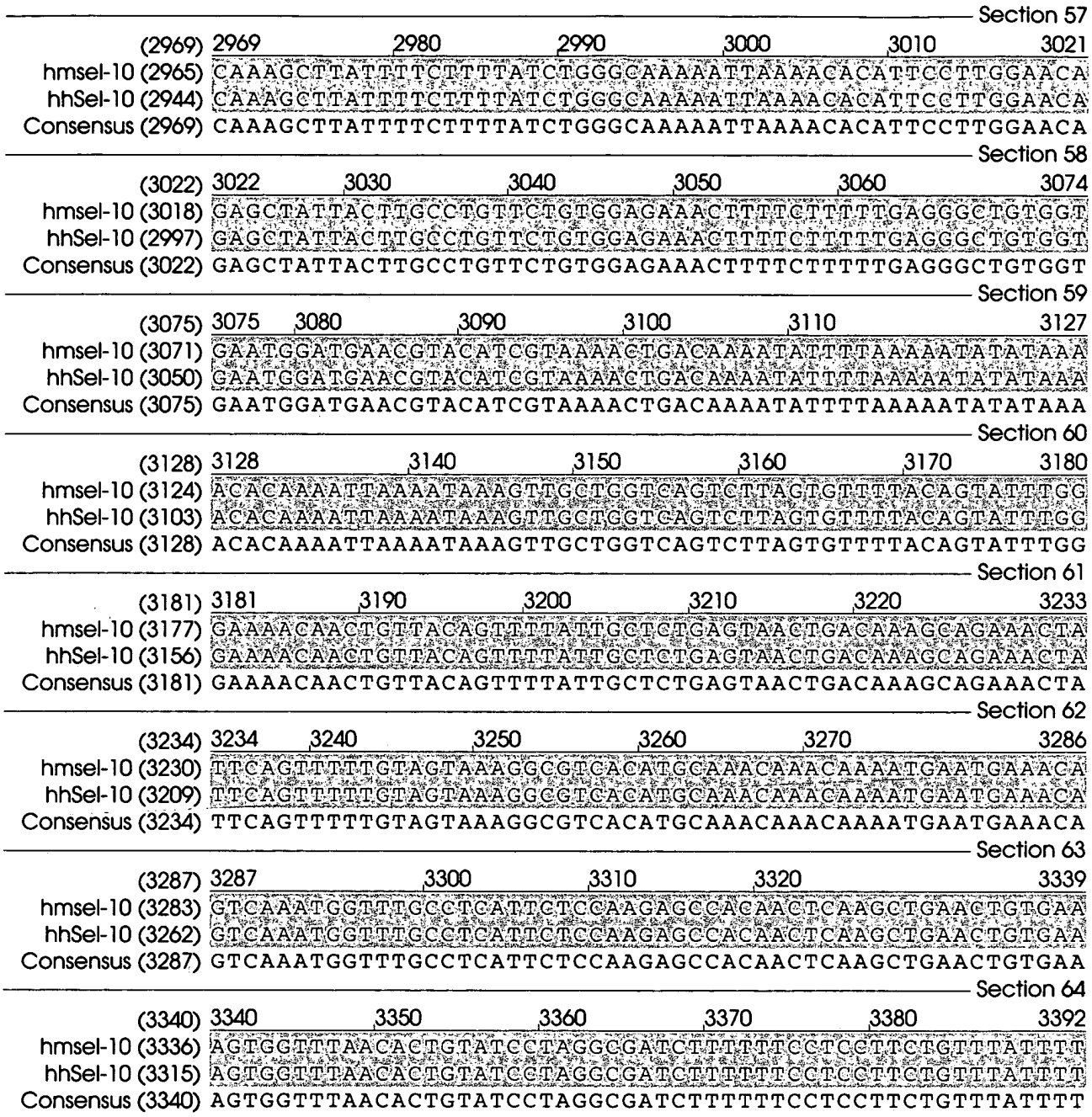

Section 17
(849) 849 860 870 880 890 901
hmsel-10 (845) AGTAATAAAACCAGGTTTCATACACAGTCCATGGAAAAGTGCATACATCAGAC
hhSel-10 (824) AGTAATAAAACCAGGTTTCATACACAGTCCATGGAAAAGTGCATACATCAGAC
Consensus (849) AGTAATAAAACCAGGTTTCATACACAGTCCATGGAAAAGTGCATACATCAGAC
Section 18
(902) 902 910 920 930 940 954
hmsel-10 (898) AGCACAGAATTGATACTAACTGGAGGCGAGGAGAACTCAAATCTCCTAAGGTG
hhSel-10 (877) AGCACAGAATTGATACTAACTGGAGGCGAGGAGAACTCAAATCTCCTAAGGTG
Consensus (902) AGCACAGAATTGATACTAACTGGAGGCGAGGAGAACTCAAATCTCCTAAGGTG
Section 19
(955) 955 960 970 980 990 1007
hmsel-10 (951) CTGAAAGGACATGATGATCATGTGATCACATGCTTACAGTTTTGTGGTAACCG
hhSel-10 (930) CTGAAAGGACATGATGATCATGTGATCACATGCTTACAGTTTTGTGGTAACCG
Consensus (955) CTGAAAGGACATGATGATCATGTGATCACATGCTTACAGTTTTGTGGTAACCG
Section 20
(1008) 1008 1020 1030 1040 1050 1060
hmsel-10 (1004) AATAGTTAGTGGTTCTGATGACAACACTTTAAAAGTTTGGTCAGCAGTCACAG
hhSel-10 (983) AATAGTTAGTGGTTCTGATGACAACACTTTAAAAGTTTGGTCAGCAGTCACAG
Consensus (1008) AATAGTTAGTGGTTCTGATGACAACACTTTAAAAGTTTGGTCAGCAGTCACAG
Section 21
(1061) 1061 1070 1080 1090 1100 1113
hmsel-10 (1057) GCAAATGTCTGAGAACATTAGTGGGACATACAGGTGGAGTATGGTCATCACAA
hhSel-10 (1036) GCAAATGTCTGAGAACATTAGTGGGACATACAGGTGGAGTATGGTCATCACAA
Consensus (1061) GCAAATGTCTGAGAACATTAGTGGGACATACAGGTGGAGTATGGTCATCACAA
Section 22
(1114) 1114 1120 1130 1140 1150 1166
hmsel-10 (1110) ATGAGAGACAACATCATCATTAGTGGATCTACAGATCGGACACTCAAAGTGTG
hhSel-10 (1089) ATGAGAGACAACATGATCATTAGTGGATCTACAGATCGGACACTCAAAGTGTC
Consensus (1114) ATGAGAGACAACATCATCATTAGTGGATCTACAGATCGGACACTCAAAGTGTG
Section 23
(1167) 1167 1180 1190 1200 1219
hmsel-10 (1163) GAATGCAGAGACTGGAGAATGTATACACACCTTATATGGGCATACTTCCACTG
hhSel-10 (1142) GAATGCAGAGACTGGAGAATGTATACACACCTTATATGGGCATACTTCCACTG
Consensus (1167) GAATGCAGAGACTGGAGAATGTATACACACCTTATATGGGCATACTTCCACTG
Section 24
(1220) 1220 1230 1240 1250 1260 1272
hmsel-10 (1216) TGCGTTGTATGCATCTTCATGAAAAAAGAGTTGTTAGCGGTTCTCGAGATGCC
hhSel-10 (1195) TGCGTTGTATGCATCTTCATGAAAAAAGAGTTGTTAGCGGTTCTCGAGATGCC
Consensus (1220) TGCGTTGTATGCATCTTCATGAAAAAAGAGTTGTTAGCGGTTCTCGAGATGCC


Section 25
(1273) 1273 1280 1290 1300 1310 1325
hmsel-10 (1269) ACTCTTAGGGTTTGGGATATTGAGACAGGCCAGTGTTTACATGTTTTGATGGG
hhSel-10 (1248) ACTCTTAGGGTTTGGGATATTGAGACAGGCCAGTGTTTACATGTTTTGATGGG
Consensus (1273) ACTCTTAGGGTTTGGGATATTGAGACAGGCCAGTGTTTACATGTTTTGATGGG
Section 26
(1326) 1326 1340 1350 1360 1378
hmsel-10 (1322) TCATGTTGCAGCAGTCCGCTGTGTTCAATATGATGGCAGGAGGGTTGTTAGTG
hhSel-10 (1301) TCATGTTGCAGCAGTCCGCTGTGTTCAATATGATGGCAGGAGGGTTGTTAGTG
Consensus (1326) TCATGTTGCAGCAGTCCGCTGTGTTCAATATGATGGCAGGAGGGTTGTTAGTG
Section 27
(1379) 1379 1390 1400 1410 1420 1431
hmsel-10 (1375) GAGCATATGATTTTATGGTAAAGGTGTGGGATCCAGAGACTGAAACCTGTCTA
hhSel-10 (1354) GAGCATATGATTTTATGGTAAAGGTGTGGGATCCAGAGACTGAAACCTGTCTA
Consensus (1379) GAGCATATGATTTTATGGTAAAGGTGTGGGATCCAGAGACTGAAACCTGTCTA
Section 28
(1432) 1432 1440 1450 1460 1470 1484
hmsel-10 (1428) CACACGTTGCAGGGGCATACTAATAGAGTCTATTCATTACAGTTTGATGGTAT
hhSel-10 (1407) CACACGTTGCAGGGGCATACTAATAGAGTCTATTCATTACAGTTTGATGGTAT
Consensus (1432) CACACGTTGCAGGGGCATACTAATAGAGTCTATTCATTACAGTTTGATGGTAT
Section 29
(1485) 1485 1490 1500 1510 1520 1537
hmsel-10 (1481) CCATGTGGTGAGTGGATCTCTTGATACATCAATCCGTGTTTGGGATGTGGAGA
hhSel-10 (1460) CCATGTGGTGAGTGGATCTCTTGATACATCAATCCGTGTTTGGGATGTGGAGA
Consensus (1485) CCATGTGGTGAGTGGATCTCTTGATACATCAATCCGTGTTTGGGATGTGGAGA
Section 30
(1538) 1538 1550 1560 1570 1580 1590
hmsel-10 (1534) CAGGGAATTGCATTCACACGTTAACAGGGCACCAGTCGTTAACAAGTGGAATG
hhSel-10 (1513) CAGGGAATTGCATTCACACGTTAACAGGGCACCAGTCGTTAACAAGTGGAATC
Consensus (1538) CAGGGAATTGCATTCACACGTTAACAGGGCACCAGTCGTTAACAAGTGGAATG
Section 31
(1591) 1591 1600 1610 1620 1630 1643
hmsel-10 (1587) GAACTCAAAGACAATATTCTTGTCTCTGGGAATGCAGATTCTACAGTTAAAAT
hhSel-10 (1566) GAACTCAAAGACAATATTCTTGTCTCTGGGAATGCAGATTCTACAGTTAAAAT
Consensus (1591) GAACTCAAAGACAATATTCTTGTCTCTGGGAATGCAGATTCTACAGTTAAAAT
Section 32
(1644) 1644 1650 1660 1670 1680 1696
hmsel-10 (1640) CTGGGATATCAAAACAGGACAGTGTTTACAAACATTGCAAGGTCCCAACAAGC
hhSel-10 (1619) CTGGGATATCAAAACAGGACAGTGTTTACAAACATTGCAAGGTCCCAACAAGC
Consensus (1644) CTGGGATATCAAAACAGGACAGTGTTTACAAACATTGCAAGGTCCCAACAAGC


Section 33
(1697) 1697 1710 1720 1730 1749
hmsel-10 (1693) ATCAGAGTGCTGTGACCTGTTTACAGTTCAACAAGAACTTTGTAATTACCAGC
hhSel-10 (1672) ATCAGAGTGCTGTGACCTGTTTACAGTTCAACAAGAACTTTGTAATTACCAGC
Consensus (1697) ATCAGAGTGCTGTGACCTGTTTACAGTTCAACAAGAACTTTGTAATTACCAGC
Section 34
(1750) 1750 1760 1770 1780 1790 1802
hmsel-10 (1746) TCAGATGATGGAACTGTAAAACTATGGGACTTGAAAACGGGTGAATTTATTCG
hhSel-10 (1725) TCAGATGATGGAACTGTAAAACTATGGGACTTGAAAACGGGTGAATTTATTCG
Consensus (1750) TCAGATGATGGAACTGTAAAACTATGGGACTTGAAAACGGGTGAATTTATTCG
Section 35
(1803) 1803 1810 1820 1830 1840 1855
hmsel-10 (1799) AAACCTAGTCACATTGGAGAGTGGGGGGAGTGGGGGAGTTGTGTGGCGGATCA
hhSel-10 (1778) AAACCTAGTCACATTGGAGAGTGGGGGGAGTGGGGGAGTTGTGTGGCGGATCA
Consensus (1803) AAACCTAGTCACATTGGAGAGTGGGGGGAGTGGGGGAGTTGTGTGGCGGATCA
Section 36
(1856) 1856 1870 1880 1890 1908
hmsel-10 (1852) GAGCCTCAAACACAAAGCTGGTGTGTGCAGTTGGGAGTCGGAATGGGACTGAA
hhSel-10 (1831) GAGCCTCAAACACAAAGCTGGTGTGTGCAGTTGGGAGTCGGAATGGGACTGAA
Consensus (1856) GAGCCTCAAACACAAAGCTGGTGTGTGCAGTTGGGAGTCGGAATGGGACTGAA
Section 37
(1909) 1909 1920 1930 1940 1950 1961
hmsel-10 (1905) GAAACCAAGCTGCTGGTGCTGGACTTTGATGTGGACATGAAGTGAAGAGCAGA
hhSel-10 (1884) GAAACCAAGCTGCTGGTGCTGGACTTTGATGTGGACATGAAGTGAAGAGCAGA
Consensus (1909) GAAACCAAGCTGCTGGTGCTGGACTTTGATGTGGACATGAAGTGAAGAGCAGA
Section 38
(1962) 1962 1970 1980 1990 2000 2014
hmsel-10 (1958) AAAGATGAATTTGTCCAATTGTGTAGACGATATACTCCCTGCCCTTCCCCCTG
hhSel-10 (1937) AAAGATGAATTTGTCCAATTGTGTAGACGATATACTCCCTGCCCTTCCCCCTG
Consensus (1962) AAAGATGAATTTGTCCAATTGTGTAGACGATATACTCCCTGCCCTTCCCCCTG
Section 39
(2015) 2015 2020 2030 2040 2050 2067
hmsel-10 (2011) CAAAAAGAAAAAAAGAAAAGAAAAAGAAAAAAATCCCTTGTTCTCAGTGGTGC
hhSel-10 (1990) CAAAAAGAAAAAAAGAAAAGAAAAAGAAAAAAATCCCTTGTTCTCAGTGGTGC
Consensus (2015) CAAAAAGAAAAAAAGAAAAGAAAAAGAAAAAAATCCCTTGTTCTCAGTGGTGC
Section 40
(2068) 2068 2080 2090 2100 2110 2120
hmsel-10 (2064) AGGATGTTGGCTTGGGGCAACAGATTGAAAAGACCTACAGACTAAGAAGGAAA
hhSel-10 (2043) AGGATGTTGGCTTGGGGCAACAGATTGAAAAGACCTACAGACTAAGAAGGAAA
Consensus (2068) AGGATGTTGGCTTGGGGCAACAGATTGAAAAGACCTACAGACTAAGAAGGAAA


Section 41
(2121) 2121 2130 2140 2150 2160 2173
hmsel-10 (2117) AGAAGAAGAGATGACAAACCATAACTGACAAGAGAGGCGTCTGCTGTCTCATC
hhSel-10 (2096) AGAAGAAGAGATGACAAACCATAACTGACAAGAGAGGCGTCTGCTGTCTCATC
Consensus (2121) AGAAGAAGAGATGACAAACCATAACTGACAAGAGAGGCGTCTGCTGTCTCATC
Section 42
(2174) 2174 2180 2190 2200 2210 2226
hmsel-10 (2170) ACATAAAAGGCTTCACTTTTGACTGAGGGCAGCTTTGCAAAATGAGACTTTCT
hhSel-10 (2149) ACATAAAAGGCTTCACTTTTGACTGAGGGCAGCTTTGCAAAATGAGACTTTCT
Consensus (2174) ACATAAAAGGCTTCACTTTTGACTGAGGGCAGCTTTGCAAAATGAGACTTTCT
Section 43
(2227) 2227 2240 2250 2260 2279
hmsel-10 (2223) AAATCAAACCAGGTGCAATTATTTCTTTATTTTCTTCTCCAGTGGTCATTGGG
hhSel-10 (2202) AAATCAAACCAGGTGCAATTATTTCTTTATTTTCTTCTCCAGTGGTCATTGGG
Consensus (2227) AAATCAAACCAGGTGCAATTATTTCTTTATTTTCTTCTCCAGTGGTCATTGGG
Section 44
(2280) 2280 2290 2300 2310 2320 2332
hmsel-10 (2276) GCAGTGTTAATGCTGAAACATCATTACAGATTCTGCTAGCCTGTTCTTTTACC
hhSel-10 (2255) GCAGTGTTAATGCTGAAACATCATTACAGATTCTGCTAGCCTGTTCTTTTACC
Consensus (2280) GCAGTGTTAATGCTGAAACATCATTACAGATTCTGCTAGCCTGTTCTTTTACC
Section 45
(2333) 2333 2340 2350 2360 2370 2385
hmsel-10 (2329) ACTGACAGCTAGACACCTAGAAAGGAACTGCAATAATATCAAAACAAGTACTG
hhSel-10 (2308) ACTGACAGCTAGACACCTAGAAAGGAACTGCAATAATATCAAAACAAGTACTG
Consensus (2333) ACTGACAGCTAGACACCTAGAAAGGAACTGCAATAATATCAAAACAAGTACTG
Section 46
(2386) 2386 2400 2410 2420 2438
hmsel-10 (2382) GTTGACTTTCTAATTAGAGAGCATCTGCAACAAAAAGTCATTTTTCTGGAGTG
hhSel-10 (2361) GTTGACTTTCTAATTAGAGAGCATCTGCAACAAAAAGTCATTTTTCTGGAGTG
Consensus (2386) GTTGACTTTCTAATTAGAGAGCATCTGCAACAAAAAGTCATTTTTCTGGAGTG
Section 47
(2439) 2439 2450 2460 2470 2480 2491
hmsel-10 (2435) GAAAAGCTTAAAAAAATTACTGTGAATTGTTTTTGTACAGTTATCATGAAAAG
hhSel-10 (2414) GAAAAGCTTAAAAAAATTACTGTGAATTGTTTTTGTACAGTTATCATGAAAAG
Consensus (2439) GAAAAGCTTAAAAAAATTACTGTGAATTGTTTTTGTACAGTTATCATGAAAAG
Section 48
(2492) 2492 2500 2510 2520 2530 2544
hmsel-10 (2488) CTTTTTTTTTTATTTTTTNGCCAACCATTGCCAATGTCAATCAATCACAGTAT
hhSel-10 (2467) CTTTTTTTTTTATTTTTTNGCCAACCATTGCCAATGTCAATCAATCACAGTAT
Consensus (2492) CTTTTTTTTTTATTTTTTNGCCAACCATTGCCAATGTCAATCAATCACAGTAT


Section 49
(2545) 2545 2550 2560 2570 2580 2597
hmsel-10 (2541) TAGCCTCTGTTAATCTATTTACTGTTGCTTCCATATACATTCTTCAATGCATA
hhSel-10 (2520) TAGCCTCTGTTAATCTATTTACTGTTGCTTCCATATACATTCTTCAATGCATA
Consensus (2545) TAGCCTCTGTTAATCTATTTACTGTTGCTTCCATATACATTCTTCAATGCATA
Section 50
(2598) 2598 2610 2620 2630 2640 2650
hmsel-10 (2594) TGTTGCTCAAAGGTGGCAAGTTGTCCTGGGTTCTGTGAGTCCTGAGATGGATT
hhSel-10 (2573) TGTTGCTCAAAGGTGGCAAGTTGTCCTGGGTTCTGTGAGTCCTGAGATGGATT
Consensus (2598) TGTTGCTCAAAGGTGGCAAGTTGTCCTGGGTTCTGTGAGTCCTGAGATGGATT
Section 51
(2651) 2651 2660 2670 2680 2690 2703
hmsel-10 (2647) TAATTCTTGATGCTGGTGCTAGAAGTAGGTCTTCAAATATGGGATTGTTGTCC
hhSel-10 (2626) TAATTCTTGATGCTGGTGCTAGAAGTAGGTCTTCAAATATGGGATTGTTGTCC
Consensus (2651) TAATTCTTGATGCTGGTGCTAGAAGTAGGTCTTCAAATATGGGATTGTTGTCC
Section 52
(2704) 2704 2710 2720 2730 2740 2756
hmsel-10 (2700) CAACCCTGTACTGTACTCCCAGTGGCCAAACTTATTTATGCTGCTAAATGAAA
hhSel-10 (2679) CAACCCTGTACTGTACTCCCAGTGGCCAAACTTATTTATGCTGCTAAATGAAA
Consensus (2704) CAACCCTGTACTGTACTCCCAGTGGCCAAACTTATTTATGCTGCTAAATGAAA
Section 53
(2757) 2757 2770 2780 2790 2809
hmsel-10 (2753) GAAAGAAAAAAGCAAATTATTTTTTTTATTTTTTTTCTGCTGTGACGTTTTAG
hhSel-10 (2732) GAAAGAAAAAAGCAAATTATTTTTTTTATTTTTTTTCTGCTGTGACGTTTTAG
Consensus (2757) GAAAGAAAAAAGCAAATTATTTTTTTTATTTTTTTTCTGCTGTGACGTTTTAG
Section 54
(2810) 2810 2820 2830 2840 2850 2862
hmsel-10 (2806) TCCCAGACTGAATTCCAAATTTGCTCTAGTTTGGTTATGGAAAAAAGACTTTT
hhSel-10 (2785) TCCCAGACTGAATTCCAAATTTGCTCTAGTTTGGTTATGGAAAAAAGACTTTT
Consensus (2810) TCCCAGACTGAATTCCAAATTTGCTCTAGTTTGGTTATGGAAAAAAGACTTTT
Section 55
(2863) 2863 2870 2880 2890 2900 2915
hmsel-10 (2859) TGCCACTGAAACTTGAGCCATCTGTGCCTCTAAGAGGCTGAGAATGGAAGAGT
hhSel-10 (2838) TGCCACTGAAACTTGAGCCATCTGTGCCTCTAAGAGGCTGAGAATGGAAGAGT
Consensus (2863) TGCCACTGAAACTTGAGCCATCTGTGCCTCTAAGAGGCTGAGAATGGAAGAGT
Section 56
(2916) 2916 2930 2940 2950 2968
hmsel-10 (2912) TTCAGATAATAAAGAGTGAAGTTTGCCTGCAAGTAAAGAATTGAGAGTGTGTG
hhSel-10 (2891) TTCAGATAATAAAGAGTGAAGTTTGCCTGCAAGTAAAGAATTGAGAGTGTGTG
Consensus (2916) TTCAGATAATAAAGAGTGAAGTTTGCCTGCAAGTAAAGAATTGAGAGTGTGTG


Section 57
(2969) 2969 2980 2990 3000 3010 3021
hmsel-10 (2965) CAAAGCTTATTTTCTTTTATCTGGGCAAAAATTAAAACACATTCCTTGGAACA
hhSel-10 (2944) CAAAGCTTATTTTCTTTTATCTGGGCAAAAATTAAAACACATTCCTTGGAACA
Consensus (2969) CAAAGCTTATTTTCTTTTATCTGGGCAAAAATTAAAACACATTCCTTGGAACA
Section 58
(3022) 3022 3030 3040 3050 3060 3074
hmsel-10 (3018) GAGCTATTACTTGCCTGTTCTGTGGAGAAACTTTTCTTTTTGAGGGCTGTGGT
hhSel-10 (2997) GAGCTATTACTTGCCTGTTCTGTGGAGAAACTTTTCTTTTTGAGGGCTGTGGT
Consensus (3022) GAGCTATTACTTGCCTGTTCTGTGGAGAAACTTTTCTTTTTGAGGGCTGTGGT
Section 59
(3075) 3075 3080 3090 3100 3110 3127
hmsel-10 (3071) GAATGGATGAACGTACATCGTAAAACTGACAAAATATTTTAAAAATATATAAA
hhSel-10 (3050) GAATGGATGAACGTACATCGTAAAACTGACAAAATATTTTAAAAATATATAAA
Consensus (3075) GAATGGATGAACGTACATCGTAAAACTGACAAAATATTTTAAAAATATATAAA
Section 60
(3128) 3128 3140 3150 3160 3170 3180
hmsel-10 (3124) ACACAAAATTAAAATAAAGTTGCTGGTCAGTCTTAGTGTTTTACAGTATTTGG
hhSel-10 (3103) ACACAAAATTAAAATAAAGTTGCTGGTCAGTCTTAGTGTTTTACAGTATTTGG
Consensus (3128) ACACAAAATTAAAATAAAGTTGCTGGTCAGTCTTAGTGTTTTACAGTATTTGG
Section 61
(3181) 3181 3190 3200 3210 3220 3233
hmsel-10 (3177) GAAAACAACTGTTACAGTTTTATTGCTCTGAGTAACTGACAAAGCAGAAACTA
hhSel-10 (3156) GAAAACAACTGTTACAGTTTTATTGCTCTGAGTAACTGACAAAGCAGAAACTA
Consensus (3181) GAAAACAACTGTTACAGTTTTATTGCTCTGAGTAACTGACAAAGCAGAAACTA
Section 62
(3234) 3234 3240 3250 3260 3270 3286
hmsel-10 (3230) TTCAGTTTTTGTAGTAAAGGCGTCACATGCAAACAAACAAAATGAATGAAACA
hhSel-10 (3209) TTCAGTTTTTGTAGTAAAGGCGTCACATGCAAACAAACAAAATGAATGAAACA
Consensus (3234) TTCAGTTTTTGTAGTAAAGGCGTCACATGCAAACAAACAAAATGAATGAAACA
Section 63
(3287) 3287 3300 3310 3320 3339
hmsel-10 (3283) GTCAAATGGTTTGCCTCATTCTCCAAGAGCCACAACTCAAGCTGAACTGTGAA
hhSel-10 (3262) GTCAAATGGTTTGCCTCATTCTCCAAGAGCCACAACTCAAGCTGAACTGTGAA
Consensus (3287) GTCAAATGGTTTGCCTCATTCTCCAAGAGCCACAACTCAAGCTGAACTGTGAA
Section 64
(3340) 3340 3350 3360 3370 3380 3392
hmsel-10 (3336) AGTGGTTTAACACTGTATCCTAGGCGATCTTTTTTCCTCCTTCTGTTTATTTT
hhSel-10 (3315) AGTGGTTTAACACTGTATCCTAGGCGATCTTTTTTCCTCCTTCTGTTTATTTT
Consensus (3340) AGTGGTTTAACACTGTATCCTAGGCGATCTTTTTTCCTCCTTCTGTTTATTTT

Section 65

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(3393) 3393      3400          3410          3420          3430          3445
hmsel-10 (3389) TTTGNTTGTTTTATTTATAGTCTGATTTAAAACAATCAGATTCAAGTTGGTTA
hhSel-10 (3368) TTTGNTTGTTTTATTTATAGTCTGATTTAAAACAATCAGATTCAAGTTGGTTA
Consensus (3393) TTTGNTTGTTTTATTTATAGTCTGATTTAAAACAATCAGATTCAAGTTGGTTA
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Section 66

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(3446) 3446                3460          3470          3480          3498
hmsel-10 (3442) ATTTTAGTTATGTAACAACCTGACATGATGGAGGAAAACAACCTTTAAAGGGA
hhSel-10 (3421) ATTTTAGTTATGTAACAACCTGACATGATGGAGGAAAACAACCTTTAAAGGGA
Consensus (3446) ATTTTAGTTATGTAACAACCTGACATGATGGAGGAAAACAACCTTTAAAGGGA
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Section 67

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(3499) 3499          3510          3520          3530          3540          3551
hmsel-10 (3495) TTGTGTCTATGGTTTGATTCACTTAGAAATTTTATTTTCTTATAACTTAAGTG
hhSel-10 (3474) TTGTGTCTATGGTTTGATTCACTTAGAAATTTTATTTTCTTATAACTTAAGTG
Consensus (3499) TTGTGTCTATGGTTTGATTCACTTAGAAATTTTATTTTCTTATAACTTAAGTG
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Section 68

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(3552) 3552      3560          3575
hmsel-10 (3548) CAATAAAATGTGTTTTTTCATGTT
hhSel-10 (3527) CAATAAAATGTGTTTTTTCATGTT
Consensus (3552) CAATAAAATGTGTTTTTTCATGTT
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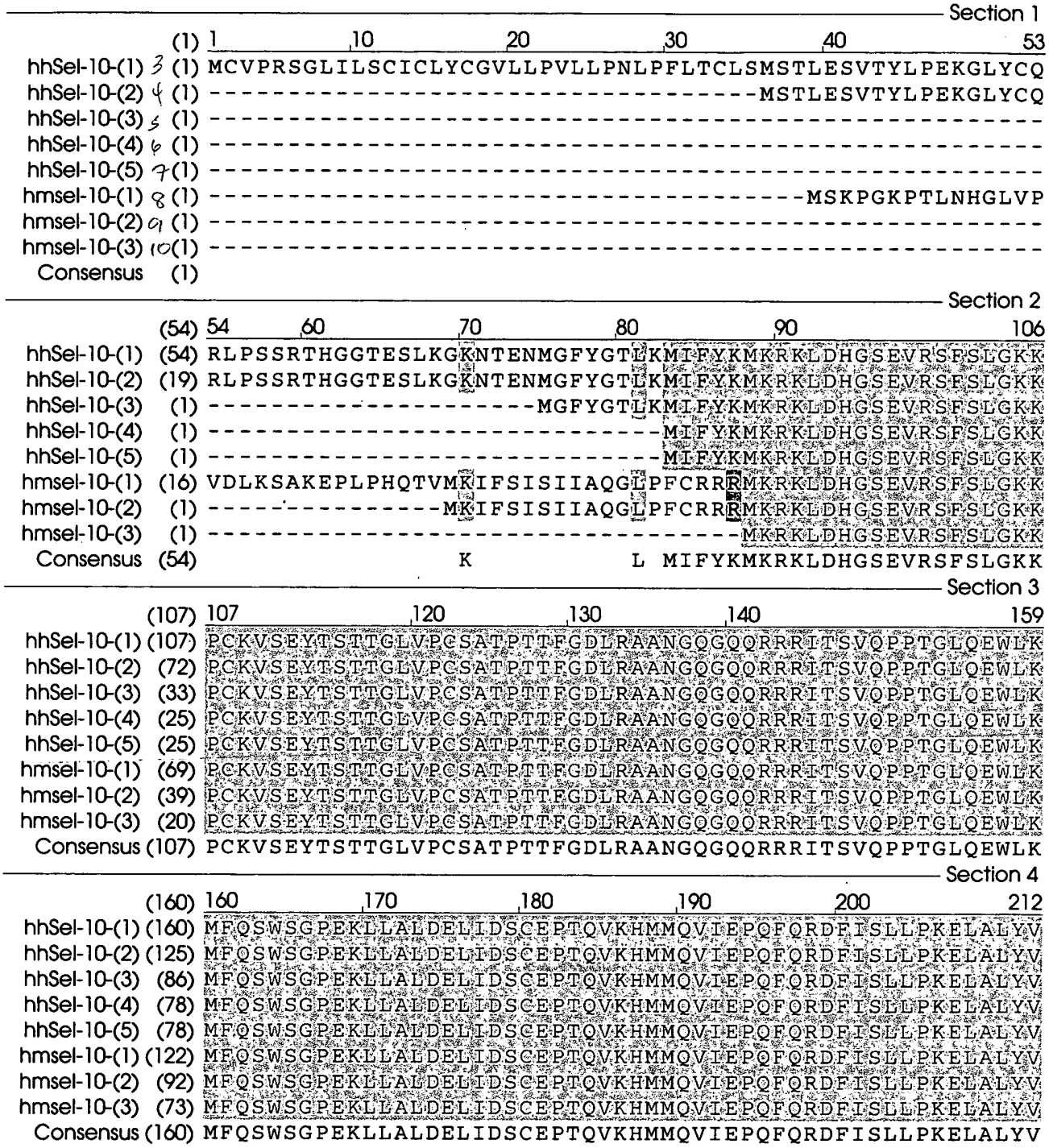
Section 1
(1) 1 10 20 30 40 53
hhSel-10-(1) 3 (1) MCVPRSGLILSCICLYCGVLLPVLLPNLPFLTCLSMSTLESVTYLPEKGLYCQ
hhSel-10-(2) 4 (1) ----------MSTLESVTYLPEKGLYCQ
hhSel-10-(3) 5 (1) ----------
hhSel-10-(4) 6 (1) ----------
hhSel-10-(5) 7 (1) ----------
hmsel-10-(1) 8 (1) ----------MSKPGKPTLNHGLVP
hhmsel-10-(2) 9 (1) ----------
hmsel-10-(3) 10 (1) ----------
Consensus (1)
Section 2
(54) 54 60 70 80 90 106
hhSel-10-(1) (54) RLPSSRTHGGTESLKGKNTENMGFYGTLKMIFYKMKRKLDHGSEVRSFSLGKK
hhSel-10-(2) (19) RLPSSRTHGGTESLKGKNTENMGFYGTLKMIFYKMKRKLDHGSEVRSFSLGKK
hhSel-10-(3) (1) ----------MGFYGTLKMIFYKMKRKLDHGSEVRSFSLGKK
hhSel-10-(4) (1) ----------MIFYKMKRKLDHGSEVRSFSLGKK
hhSel-10-(5) (1) ----------MIFYKMKRKLDHGSEVRSFSLGKK
hmsel-10-(1) (16) VDLKSAKEPLPHQTVMKIFSISIIAQGLPFCRRRMKRKLDHGSEVRSFSLGKK
hmsel-10-(2) (1) ----------MKIFSISIIAQGLPFCRRRMKRKLDHGSEVRSFSLGKK
hmsel-10-(3) (1) ----------MKRKLDHGSEVRSFSLGKK
Consensus (54) K L MIFYKMKRKLDHGSEVRSFSLGKK
Section 3
(107) 107 120 130 140 159
hhSel-10-(1) (107) PCKVSEYTSTTGLVPCSATPTTFGDLRAANGQGQQRRRITSVQPPTGLQEWLK
hhSel-10-(2) (72) PCKVSEYTSTTGLVPCSATPTTFGDLRAANGQGQQRRRITSVQPPTGLQEWLK
hhSel-10-(3) (33) PCKVSEYTSTTGLVPCSATPTTFGDLRAANGQGQQRRRITSVQPPTGLQEWLK
hhSel-10-(4) (25) PCKVSEYTSTTGLVPCSATPTTFGDLRAANGQGQQRRRITSVQPPTGLQEWLK
hhSel-10-(5) (25) PCKVSEYTSTTGLVPCSATPTTFGDLRAANGQGQQRRRITSVQPPTGLQEWLK
hmsel-10-(1) (69) PCKVSEYTSTTGLVPCSATPTTFGDLRAANGQGQQRRRITSVQPPTGLQEWLK
hmsel-10-(2) (39) PCKVSEYTSTTGLVPCSATPTTFGDLRAANGQGQQRRRITSVQPPTGLQEWLK
hmsel-10-(3) (20) PCKVSEYTSTTGLVPCSATPTTFGDLRAANGQGQQRRRITSVQPPTGLQEWLK
Consensus (107) PCKVSEYTSTTGLVPCSATPTTFGDLRAANGQGQQRRRITSVQPPTGLQEWLK
Section 4
(160) 160 170 180 190 200 212
hhSel-10-(1) (160) MFQSWSGPEKLLALDELIDSCEPTQVKHMMQVIEPQFQRDFISLLPKELALYV
hhSel-10-(2) (125) MFQSWSGPEKLLALDELIDSCEPTQVKHMMQVIEPQFQRDFISLLPKELALYV
hhSel-10-(3) (86) MFQSWSGPEKLLALDELIDSCEPTQVKHMMQVIEPQFQRDFISLLPKELALYV
hhSel-10-(4) (78) MFQSWSGPEKLLALDELIDSCEPTQVKHMMQVIEPQFQRDFISLLPKELALYV
hhSel-10-(5) (78) MFQSWSGPEKLLALDELIDSCEPTQVKHMMQVIEPQFQRDFISLLPKELALYV
hmsel-10-(1) (122) MFQSWSGPEKLLALDELIDSCEPTQVKHMMQVIEPQFQRDFISLLPKELALYV
hmsel-10-(2) (92) MFQSWSGPEKLLALDELIDSCEPTQVKHMMQVIEPQFQRDFISLLPKELALYV
hmsel-10-(3) (73) MFQSWSGPEKLLALDELIDSCEPTQVKHMMQVIEPQFQRDFISLLPKELALYV
Consensus (160) MFQSWSGPEKLLALDELIDSCEPTQVKHMMQVIEPQFQRDFISLLPKELALYV

Section 5

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(213) 213       220       230       240       250       265
hhSel-10-(1) (213) LSFLEPKDLLQAAQTCRYWRILAEDNLLWREKCKEEGIDEPLHIKRRKVIKPG
hhSel-10-(2) (178) LSFLEPKDLLQAAQTCRYWRILAEDNLLWREKCKEEGIDEPLHIKRRKVIKPG
hhSel-10-(3) (139) LSFLEPKDLLQAAQTCRYWRILAEDNLLWREKCKEEGIDEPLHIKRRKVIKPG
hhSel-10-(4) (131) LSFLEPKDLLQAAQTCRYWRILAEDNLLWREKCKEEGIDEPLHIKRRKVIKPG
hhSel-10-(5) (131) LSFLEPKDLLQAAQTCRYWRILAEDNLLWREKCKEEGIDEPLHIKRRKVIKPG
hmsel-10-(1) (175) LSFLEPKDLLQAAQTCRYWRILAEDNLLWREKCKEEGIDEPLHIKRRKVIKPG
hmsel-10-(2) (145) LSFLEPKDLLQAAQTCRYWRILAEDNLLWREKCKEEGIDEPLHIKRRKVIKPG
hmsel-10-(3) (126) LSFLEPKDLLQAAQTCRYWRILAEDNLLWREKCKEEGIDEPLHIKRRKVIKPG
Consensus (213) LSFLEPKDLLQAAQTCRYWRILAEDNLLWREKCKEEGIDEPLHIKRRKVIKPG
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Section 6

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(266) 266       280       290       300       318
hhSel-10-(1) (266) FIHSPWKSAYIRQHRIDTNWRRGELKSPKVLKGHDDHVITCLQFCGNRIVSGS
hhSel-10-(2) (231) FIHSPWKSAYIRQHRIDTNWRRGELKSPKVLKGHDDHVITCLQFCGNRIVSGS
hhSel-10-(3) (192) FIHSPWKSAYIRQHRIDTNWRRGELKSPKVLKGHDDHVITCLQFCGNRIVSGS
hhSel-10-(4) (184) FIHSPWKSAYIRQHRIDTNWRRGELKSPKVLKGHDDHVITCLQFCGNRIVSGS
hhSel-10-(5) (184) FIHSPWKSAYIRQHRIDTNWRRGELKSPKVLKGHDDHVITCLQFCGNRIVSGS
hmsel-10-(1) (228) FIHSPWKSAYIRQHRIDTNWRRGELKSPKVLKGHDDHVITCLQFCGNRIVSGS
hmsel-10-(2) (198) FIHSPWKSAYIRQHRIDTNWRRGELKSPKVLKGHDDHVITCLQFCGNRIVSGS
hmsel-10-(3) (179) FIHSPWKSAYIRQHRIDTNWRRGELKSPKVLKGHDDHVITCLQFCGNRIVSGS
Consensus (266) FIHSPWKSAYIRQHRIDTNWRRGELKSPKVLKGHDDHVITCLQFCGNRIVSGS
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Section 7

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(319) 319       330       340       350       360       371
hhSel-10-(1) (319) DDNTLKVWSAVTGKCLRTLVGHTGGVWSSQMRDNIIISGSTDRTLKVWNAETG
hhSel-10-(2) (284) DDNTLKVWSAVTGKCLRTLVGHTGGVWSSQMRDNIIISGSTDRTLKVWNAETG
hhSel-10-(3) (245) DDNTLKVWSAVTGKCLRTLVGHTGGVWSSQMRDNIIISGSTDRTLKVWNAETG
hhSel-10-(4) (237) DDNTLKVWSAVTGKCLRTLVGHTGGVWSSQMRDNIIISGSTDRTLKVWNAETG
hhSel-10-(5) (237) DDNTLKVWSAVTGKCLRTLVGHTGGVWSSQMRDNIIISGSTDRTLKVWNAETG
hmsel-10-(1) (281) DDNTLKVWSAVTGKCLRTLVGHTGGVWSSQMRDNIIISGSTDRTLKVWNAETG
hmsel-10-(2) (251) DDNTLKVWSAVTGKCLRTLVGHTGGVWSSQMRDNIIISGSTDRTLKVWNAETG
hmsel-10-(3) (232) DDNTLKVWSAVTGKCLRTLVGHTGGVWSSQMRDNIIISGSTDRTLKVWNAETG
Consensus (319) DDNTLKVWSAVTGKCLRTLVGHTGGVWSSQMRDNIIISGSTDRTLKVWNAETG
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Section 8

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(372) 372       380       390       400       410       424
hhSel-10-(1) (372) ECIHTLYGHTSTVRCMHLHEKRVVSGSRDATLRVWDIETGQCLHVLMGHVAAV
hhSel-10-(2) (337) ECIHTLYGHTSTVRCMHLHEKRVVSGSRDATLRVWDIETGQCLHVLMGHVAAV
hhSel-10-(3) (298) ECIHTLYGHTSTVRCMHLHEKRVVSGSRDATLRVWDIETGQCLHVLMGHVAAV
hhSel-10-(4) (290) ECIHTLYGHTSTVRCMHLHEKRVVSGSRDATLRVWDIETGQCLHVLMGHVAAV
hhSel-10-(5) (290) ECIHTLYGHTSTVRCMHLHEKRVVSGSRDATLRVWDIETGQCLHVLMGHVAAV
hmsel-10-(1) (334) ECIHTLYGHTSTVRCMHLHEKRVVSGSRDATLRVWDIETGQCLHVLMGHVAAV
hmsel-10-(2) (304) ECIHTLYGHTSTVRCMHLHEKRVVSGSRDATLRVWDIETGQCLHVLMGHVAAV
hmsel-10-(3) (285) ECIHTLYGHTSTVRCMHLHEKRVVSGSRDATLRVWDIETGQCLHVLMGHVAAV
Consensus (372) ECIHTLYGHTSTVRCMHLHEKRVVSGSRDATLRVWDIETGQCLHVLMGHVAAV
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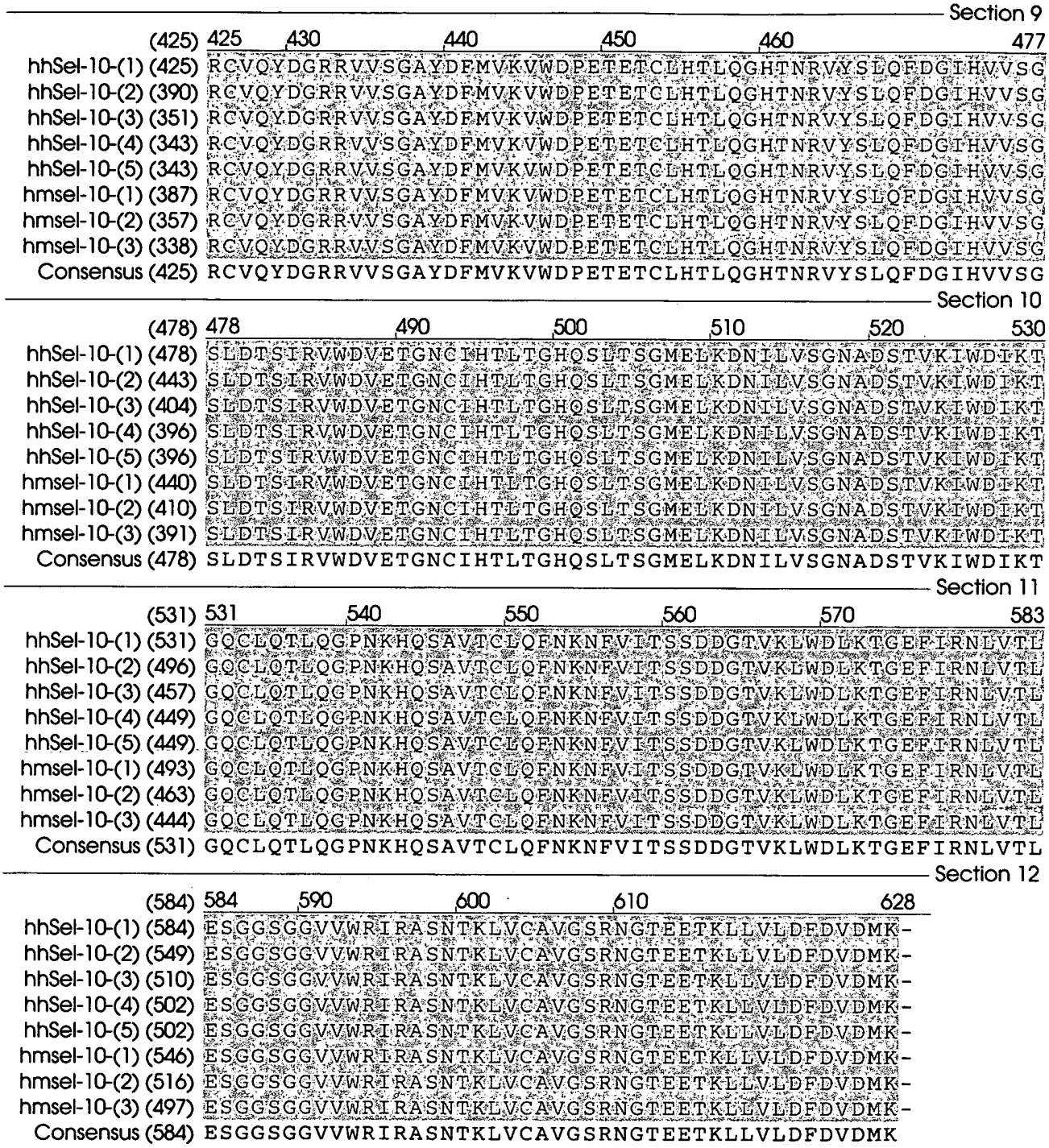
Section 9
(425) 425 430 440 450 460 477
hhSel-10-(1) (425) RCVQYDGRRVVSGAYDFMVKVWDPETETCLHTLQGHTNRVYSLQFDGIHVVSG
hhSel-10-(2) (390) RCVQYDGRRVVSGAYDFMVKVWDPETETCLHTLQGHTNRVYSLQFDGIHVVSG
hhSel-10-(3) (351) RCVQYDGRRVVSGAYDFMVKVWDPETETCLHTLQGHTNRVYSLQFDGIHVVSG
hhSel-10-(4) (343) RCVQYDGRRVVSGAYDFMVKVWDPETETCLHTLQGHTNRVYSLQFDGIHVVSG
hhSel-10-(5) (343) RCVQYDGRRVVSGAYDFMVKVWDPETETCLHTLQGHTNRVYSLQFDGIHVVSG
hmsel-10-(1) (387) RCVQYDGRRVVSGAYDFMVKVWDPETETCLHTLQGHTNRVYSLQFDGIHVVSG
hmsel-10-(2) (357) RCVQYDGRRVVSGAYDFMVKVWDPETETCLHTLQGHTNRVYSLQFDGIHVVSG
hmsel-10-(3) (338) RCVQYDGRRVVSGAYDFMVKVWDPETETCLHTLQGHTNRVYSLQFDGIHVVSG
Consensus (425) RCVQYDGRRVVSGAYDFMVKVWDPETETCLHTLQGHTNRVYSLQFDGIHVVSG
Section 10
(478) 478 490 500 510 520 530
hhSel-10-(1) (478) SLDTSIRVWDVETGNCIHTLTGHQSLTSGMELKDNILVSGNADSTVKIWDIKT
hhSel-10-(2) (443) SLDTSIRVWDVETGNCIHTLTGHQSLTSGMELKDNILVSGNADSTVKIWDIKT
hhSel-10-(3) (404) SLDTSIRVWDVETGNCIHTLTGHQSLTSGMELKDNILVSGNADSTVKIWDIKT
hhSel-10-(4) (396) SLDTSIRVWDVETGNCIHTLTGHQSLTSGMELKDNILVSGNADSTVKIWDIKT
hhSel-10-(5) (396) SLDTSIRVWDVETGNCIHTLTGHQSLTSGMELKDNILVSGNADSTVKIWDIKT
hmsel-10-(1) (440) SLDTSIRVWDVETGNCIHTLTGHQSLTSGMELKDNILVSGNADSTVKIWDIKT
hmsel-10-(2) (410) SLDTSIRVWDVETGNCIHTLTGHQSLTSGMELKDNILVSGNADSTVKIWDIKT
hmsel-10-(3) (391) SLDTSIRVWDVETGNCIHTLTGHQSLTSGMELKDNILVSGNADSTVKIWDIKT
Consensus (478) SLDTSIRVWDVETGNCIHTLTGHQSLTSGMELKDNILVSGNADSTVKIWDIKT
Section 11
(531) 531 540 550 560 570 583
hhSel-10-(1) (531) GQCLQTLQGPNKHQSAVTCLQFNKNFVITSSDDGTVKLWDLKTGEFIRNLVTL
hhSel-10-(2) (496) GQCLQTLQGPNKHQSAVTCLQFNKNFVITSSDDGTVKLWDLKTGEFIRNLVTL
hhSel-10-(3) (457) GQCLQTLQGPNKHQSAVTCLQFNKNFVITSSDDGTVKLWDLKTGEFIRNLVTL
hhSel-10-(4) (449) GQCLQTLQGPNKHQSAVTCLQFNKNFVITSSDDGTVKLWDLKTGEFIRNLVTL
hhSel-10-(5) (449) GQCLQTLQGPNKHQSAVTCLQFNKNFVITSSDDGTVKLWDLKTGEFIRNLVTL
hmsel-10-(1) (493) GQCLQTLQGPNKHQSAVTCLQFNKNFVITSSDDGTVKLWDLKTGEFIRNLVTL
hmsel-10-(2) (463) GQCLQTLQGPNKHQSAVTCLQFNKNFVITSSDDGTVKLWDLKTGEFIRNLVTL
hmsel-10-(3) (444) GQCLQTLQGPNKHQSAVTCLQFNKNFVITSSDDGTVKLWDLKTGEFIRNLVTL
Consensus (531) GQCLQTLQGPNKHQSAVTCLQFNKNFVITSSDDGTVKLWDLKTGEFIRNLVTL
Section 12
(584) 584 590 600 610 628
hhSel-10-(1) (584) ESGGSGGVVWRIRASNTKLVCAVGSRNGTEETKLLVLDFDVDMK-
hhSel-10-(2) (549) ESGGSGGVVWRIRASNTKLVCAVGSRNGTEETKLLVLDFDVDMK-
hhSel-10-(3) (510) ESGGSGGVVWRIRASNTKLVCAVGSRNGTEETKLLVLDFDVDMK-
hhSel-10-(4) (502) ESGGSGGVVWRIRASNTKLVCAVGSRNGTEETKLLVLDFDVDMK-
hhSel-10-(5) (502) ESGGSGGVVWRIRASNTKLVCAVGSRNGTEETKLLVLDFDVDMK-
hmsel-10-(1) (546) ESGGSGGVVWRIRASNTKLVCAVGSRNGTEETKLLVLDFDVDMK-
hmsel-10-(2) (516) ESGGSGGVVWRIRASNTKLVCAVGSRNGTEETKLLVLDFDVDMK-
hmsel-10-(3) (497) ESGGSGGVVWRIRASNTKLVCAVGSRNGTEETKLLVLDFDVDMK-
Consensus (584) ESGGSGGVVWRIRASNTKLVCAVGSRNGTEETKLLVLDFDVDMK